

IN THE CLAIMS

1. (Currently amended) A medical article, comprising an implantable substrate having a coating deposited on the substrate, the coating comprising a polymer, the polymer being a product of co-polycondensation of a diketene acetal and a diol,

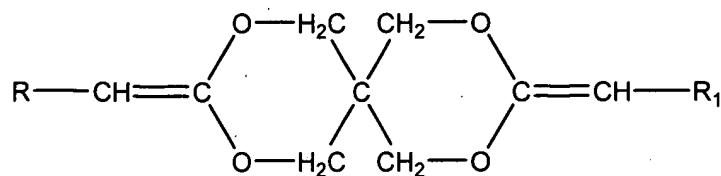
wherein the diol comprises aliphatic, cycloaliphatic, aromatic, or organosilicon diols or combinations thereof,

wherein the aliphatic diol comprises alkylene glycols, poly- or oligoalkylene glycols, or ~~mixtures~~ combinations thereof, and

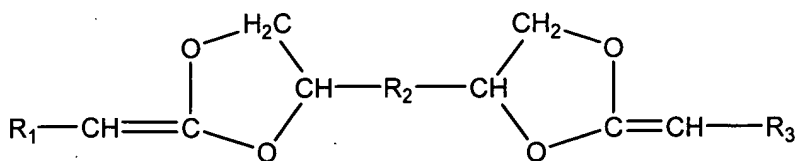
wherein the alkylene glycols are selected from the group consisting of ethylene glycol, 1,2-propylene glycol, 1,4-butanediol, 1,5-pentanediol, 1,7-heptanediol, 1,8-octanediol, 1,9-nonanediol, 1,10-decanediol, 1,11-undecanediol, 1,12-dodecanediol, 1,13-tridecanediol, 1,14-tetradecanediol, 1,15-pentadecanediol, 1,16-hexadecanediol, 1,3-propylene glycol, butane-1,3-diol, pentane-2,4-diol, hexane-2,5-diol, and ~~mixtures~~ combinations thereof.

2. (Original) The article of Claim 1, wherein the implantable substrate is a stent.

3. (Previously presented) The article of Claim 1, wherein the diketene acetal is selected from a group of compounds having formulae (I) or (II):



(I)



(II)

wherein R, R₁, and R₃ are, independently, unsubstituted or substituted straight-chained, branched, or cyclic alkyl radicals C₁-C₈, or unsubstituted or substituted aryl radicals; and R₂ is a straight chain or branched C₁ to C₁₆ alkyl group or a straight chain or branched C₁ to C₁₆ alkyl group containing an ether group.

4. (Currently amended) The article of Claim 1, wherein the diketene acetal is selected from a group consisting of 3,9-diethylidene-2,4,8,10-tetraoxaspiro-[5,5]-undecane, 3,9-dipentylidene-2,4,8,10-tetraoxaspiro-[5,5]-heptadecane, 3,9-dibutylidene-2,4,8,10-tetraoxaspiro-[5,5]-pentadecane, 3,9-dipropylidene-2,4,8,10-tetraoxaspiro-[5,5]-tridecane, and mixtures combinations thereof.

5. Cancelled.

6. (Previously presented) The article of Claim 1, wherein the aliphatic diols comprise alkylene glycols or oligoalkylene glycols.

7. (Currently amended) The article of Claim 6, wherein the alkylene glycols are selected from a group consisting of ethylene glycol, 1,2-propylene glycol, 1,4-butanediol, 1,5-pentanediol, 1,7-heptanediol, 1,8-octanediol, 1,9-nonanediol, 1,10-decanediol, 1,11-

undecanediol, 1,12-dodecanediol, 1,13-tridecanediol, 1,14-tetradecanediol, 1,15-pentadecanediol, 1,16-hexadecanediol, 1,3-propylene glycol, butane-1,3-diol, pentane-2,4-diol, hexane-2,5-diol, and ~~mixtures~~ combinations thereof.

8. (Currently amended) The article of Claim 6, wherein the oligoalkylene glycols are selected from a group consisting of poly(tetramethylene glycol), diethylene glycol, triethylene glycol, tetraethylene glycol, poly(tetraethylene glycol), poly(pentaethylene glycol), poly(hexamethylene glycol), poly(propylene glycol), and ~~mixtures~~ combinations thereof.

9. (Currently amended) The article of Claim 1, wherein the cycloaliphatic diols are selected from a group consisting of *trans*-cyclohexanedimethanol, *cis*-cyclohexanedimethanol, 1,2-cyclobutanediol, 1,3-cyclobutanediol, 1,2-cyclopentanediol, 1,3-cyclopentanediol, 1,2-cyclohexanediol, 1,3-cyclohexanediol, 1,4-cyclohexanediol, 1,2-cycloheptanediol, 1,3-cycloheptanediol, 1,4-cycloheptanediol, caprolactone diol, and ~~mixtures~~ combinations thereof.

10. (Currently amended) The article of Claim 1, wherein the aromatic diols are selected from a group consisting of *p*-benzenedimethanol, *o*-benzenedimethanol, *m*-benzenedimethanol, and ~~mixtures~~ combinations thereof.

11. (Previously presented) The article of Claim 1, wherein the organosilicon diol is a carbinol-terminated poly(dimethyl siloxane).

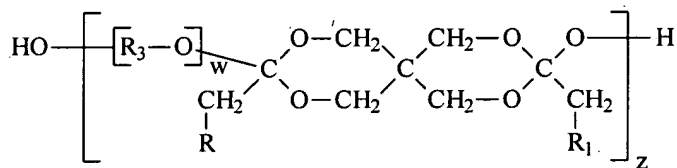
12. (Original) The article of Claim 1, wherein a hydroxylated functional compound is additionally included in the polycondensation process.

13. (Currently amended) The article of Claim 12, wherein the hydroxylated functional compound comprises poly(alkylene glycols), hydroxylated poly(N-vinyl pyrrolidone), dextran, dextrin, hyaluronic acid, derivatives of hyaluronic acid, poly(2-hydroxyethyl methacrylate), hydroxy functional poly(styrene sulfonate), hydroxy functional phosphoryl

choline methacrylate polymers, polymers with both hydroxyl and phosphoryl choline functionality, heparin, or mixtures combinations thereof.

14. (Original) The article of Claim 13, wherein the poly(alkylene glycols) are selected from a group consisting of poly(ethylene glycol), poly(propylene glycol), poly(tetramethylene glycol), and poly(ethylene oxide-co-propylene oxide).

15. (Currently amended) A medical device comprising a coating, the coating comprising a polymer including a unit having a formula:



wherein:

R and R₁ are, independently, unsubstituted or substituted straight-chained, branched, or cyclic alkyl radicals C₁-C₈, or unsubstituted or substituted aryl radicals;

R₃ is an aliphatic, cycloaliphatic, aromatic, or organosilicon group radical; and

“w” and “z” are integers, where the value of “w” is between 1 and 40, the value of “z” is between 9 and 700,

wherein the aliphatic radical of R₃ is derived from alkylene glycols, poly- or oligoalkylene glycols, or mixtures combinations thereof; and

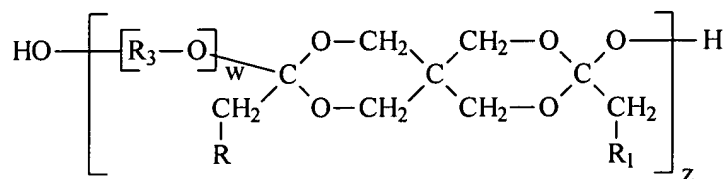
wherein the alkylene glycols are selected from the group consisting of ethylene glycol, 1,2-propylene glycol, 1,4-butanediol, 1,5-pentanediol, 1,7-heptanediol, 1,8-octanediol, 1,9-nonanediol, 1,10-decanediol, 1,11-undecanediol, 1,12-dodecanediol, 1,13-tridecanediol, 1,14-

tetradecanediol, 1,15-pentadecanediol, 1,16-hexadecanediol, 1,3-propylene glycol, butane-1,3-diol, pentane-2,4-diol, hexane-2,5-diol, and ~~mixtures~~ combinations thereof.

16. (Currently amended) The device of Claim 15, wherein the aliphatic ~~radicals are~~ is selected from a group consisting of *n*-butyl and *n*-hexyl.

17. (Currently amended) The device of Claim 15, wherein the cycloaliphatic ~~radicals are~~ radical is selected from a group consisting of *trans*-cyclohexyl and *cis*-cyclohexyl.

18. (Currently amended) A medical device, comprising a coating, the coating comprising a polymer including a unit having a formula:



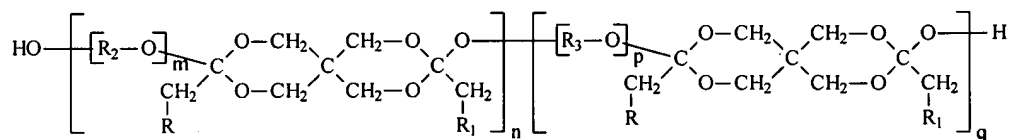
wherein:

R and R₁ are, independently, unsubstituted or substituted straight-chained, branched, or cyclic alkyl radicals C₁-C₈, or unsubstituted or substituted aryl radicals;

R₃ is an aliphatic, cycloaliphatic, aromatic, or organosilicon ~~group~~ radical; and

“w” and “z” are integers, where the value of “w” is between 1 and 40, the value of “z” is between 9 and 700, and

a polymer having a formula



wherein:

R and R₁ are, independently, unsubstituted or substituted straight-chained, branched, or cyclic alkyl radicals C₁-C₈, or unsubstituted or substituted aryl radicals;

R₂-O is a non-fouling moiety derived from a hydroxylated functional compound;

R₃ is an aliphatic or cycloaliphatic ~~group~~ radical;

“m,” “n,” “p,” and “q” are all integers, where the value of “m” is between 5 and 500, the value of “n” is between 2 and 350, the value of “p” is between 1 and 20, and the value of “q” is between 10 and 550.

19. (Currently amended) The device of Claim 18, wherein the hydroxylated functional compound comprises poly(alkylene glycols), hydroxylated poly(N-vinyl pyrrolidone), dextran, dextrin, hyaluronic acid, derivatives of hyaluronic acid, poly(2-hydroxyethyl methacrylate), hydroxy functional poly(styrene sulfonate), hydroxy functional phosphoryl choline methacrylate polymers, polymers with both hydroxyl and phosphoryl choline functionality, heparin, or ~~mixtures~~ combinations thereof.

20. (Original) The device of Claim 19, wherein poly(alkylene glycols) are selected from a group consisting of poly(ethylene glycol), poly(propylene glycol), poly(tetramethylene glycol), and poly(ethylene oxide-co-propylene oxide).

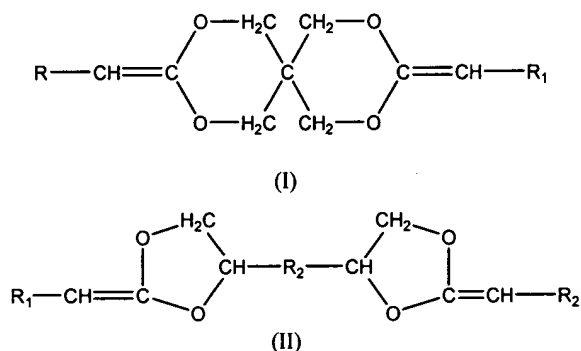
21. (Currently amended) A method for fabricating a coating for an implantable medical device, the method comprising applying a polymer onto ~~the surface of~~ the device, wherein the polymer comprises a product of co-polycondensation of a diketene acetal and a diol, wherein the diol comprises aliphatic, cycloaliphatic, aromatic, or organosilicon diols or combinations thereof,

wherein the aliphatic diols comprises alkylene glycols, poly- or oligoalkylene glycols, or ~~mixtures~~ combinations thereof, and

wherein the alkylene glycols are selected from the group consisting of ethylene glycol, 1,2-propylene glycol, 1,4-butanediol, 1,5-pentanediol, 1,7-heptanediol, 1,8-octanediol, 1,9-nonanediol, 1,10-decanediol, 1,11-undecanediol, 1,12-dodecanediol, 1,13-tridecanediol, 1,14-tetradecanediol, 1,15-pentadecanediol, 1,16-hexadecanediol, 1,3-propylene glycol, butane-1,3-diol, pentane-2,4-diol, hexane-2,5-diol, and ~~mixtures~~ combinations thereof.

22. (Original) The method of Claim 21, wherein the medical device is a stent.

23. (Currently amended) The method of Claim 21, wherein the diketene acetal is selected from a group of compounds having formulae (I) and (II):



wherein R, R₁, and R₃ ~~and~~ are, independently, unsubstituted or substituted straight-chained, branched, or cyclic alkyl radicals C₁-C₈, or unsubstituted or substituted aryl radicals; and R₂ is a straight chain or branched C₁ to C₁₆ alkyl group or a straight chain or branched C₁ to C₁₆ alkyl group containing an ether group.

24. (Currently amended) The method of Claim 21, wherein the diketene acetal is selected from a group consisting of 3,9-diethylidene-2,4,8,10-tetraoxaspiro-[5,5]-undecane, 3,9-dipentylidene-2,4,8,10-tetraoxaspiro-[5,5]-heptadecane, 3,9-dibutylidene-2,4,8,10-tetraoxaspiro-[5,5]-pentadecane, 3,9-dipropylidene-2,4,8,10-tetraoxaspiro-[5,5]-tridecane, and ~~mixtures~~ combinations thereof.

25. Cancelled.

26. (Previously presented) The method of Claim 21, wherein the aliphatic diols comprise alkylene glycols or oligoalkylene glycols.

27. (Currently amended) The method of Claim 26, wherein the alkylene glycols are selected from a group consisting of ethylene glycol, 1,2-propylene glycol, 1,4-butanediol, 1,5-pentanediol, 1,7-heptanediol, 1,8-octanediol, 1,9-nonanediol, 1,10-decanediol, 1,11-undecanediol, 1,12-dodecanediol, 1,13-tridecanediol, 1,14-tetradecanediol, 1,15-pentadecanediol, 1,16-hexadecanediol, 1,3-propylene glycol, butane-1,3-diol, pentane-2,4-diol, hexane-2,5-diol, and ~~mixtures~~ combinations thereof.

28. (Currently amended) The method of Claim ~~25~~ 21, wherein the oligoalkylene glycols are selected from a group consisting of poly(tetramethylene glycol), diethylene glycol, triethylene glycol, tetraethylene glycol, poly(tetraethylene glycol), poly(pentaethylene glycol), poly(hexamethylene glycol), poly(propylene glycol), and ~~mixtures~~ combinations thereof.

29. (Currently amended) The method of Claim ~~25~~ 21, wherein the cycloaliphatic diols are selected from a group consisting of *trans*-cyclohexanedimethanol, *cis*-cyclohexanedimethanol, 1,2-cyclobutanediol, 1,3-cyclobutanediol, 1,2-cyclopentanediol, 1,3-cyclopentanediol, 1,2-cyclohexanediol, 1,3-cyclohexanediol, 1,4-cyclohexanediol, 1,2-cycloheptanediol, 1,3-cycloheptanediol, 1,4-cycloheptanediol, caprolactone diol, and ~~mixtures~~ combinations thereof.

30. (Currently amended) The method of Claim ~~25~~ 30, wherein the aromatic diols are selected from a group consisting of *p*-benzenedimethanol, *o*-benzenedimethanol, *m*-benzenedimethanol, and ~~mixtures~~ combinations thereof.

31. (Currently amended) The method of Claim ~~25~~ 21, wherein the organosilicon diol is a carbinol-terminated poly(dimethyl siloxane).

32. (Original) The method of Claim 21, wherein a hydroxylated functional compound is additionally included in the polycondensation process.

33. (Currently amended) The method of Claim 32, wherein the hydroxylated functional compound comprises poly(alkylene glycols), hydroxylated poly(N-vinyl pyrrolidone), dextran, dextrin, hyaluronic acid, derivatives of hyaluronic acid, poly(2-hydroxyethyl methacrylate), hydroxy functional poly(styrene sulfonate), hydroxy functional phosphoryl choline methacrylate polymers, polymers with both hydroxyl and phosphoryl choline functionality, heparin, or ~~mixtures~~ combinations thereof.

34. (Original) The method of Claim 33, wherein the poly(alkylene glycols) are selected from a group consisting of poly(ethylene glycol), poly(propylene glycol), poly(tetramethylene glycol), and poly(ethylene oxide-co-propylene oxide).

35. (Previously presented) The article of claim 1, wherein the diol comprises an aliphatic diol.

36. (Previously presented) The article of claim 1, wherein the diol comprises a cycloaliphatic diol.

37. (Previously presented) The article of claim 1, wherein the diol comprises an aromatic diol.

38. (Previously presented) The article of claim 1, wherein the diol comprises an organosilicon diol.

39. (Previously presented) The article of claim 1, wherein the diketene acetal comprises 3,9-diethylidene-2,4,8,10-tetraoxaspiro-[5,5]-undecane.

40. (Previously presented) The article of claim 1, wherein the diketene acetal comprises 3,9-dipentylidene-2,4,8,10-tetraoxaspiro-[5,5]-heptadecane.

41. (Previously presented) The article of claim 1, wherein the diketene acetal comprises 3,9-dibutylidene-2,4,8,10-tetraoxaspiro-[5,5]-pentadecane.

42. (Previously presented) The article of claim 1, wherein the diketene acetal comprises 3,9-dipropylidene-2,4,8,10-tetraoxaspiro-[5,5]-tridecane.

43. (Previously presented) The article of claim 12, wherein the hydroxylated functional compound comprises poly(alkylene glycols).

44. (Currently amended) A medical article, comprising an implantable substrate having a coating deposited on the substrate, the coating comprising a polymer, the polymer being a product of co-polycondensation of a diketene acetal, a diol and a hydroxylated functional compound,

wherein the diol comprises aliphatic, cycloaliphatic, aromatic, or organosilicon diols or combinations thereof,

wherein the aliphatic diol comprises alkylene glycols, poly- or oligoalkylene glycols, or ~~mixtures~~ combinations thereof,

wherein the alkylene glycols are selected from the group consisting of ethylene glycol, 1,2-propylene glycol, 1,4-butanediol, 1,5-pentanediol, 1,7-heptanediol, 1,8-octanediol, 1,9-nonanediol, 1,10-decanediol, 1,11-undecanediol, 1,12-dodecanediol, 1,13-tridecanediol, 1,14-tetradecanediol, 1,15-pentadecanediol, 1,16-hexadecanediol, 1,3-propylene glycol, butane-1,3-diol, pentane-2,4-diol, hexane-2,5-diol, and ~~mixtures~~ combinations thereof,

wherein the hydroxylated functional compound comprises ~~any of~~ comprises hydroxylated poly(N-vinyl pyrrolidone), dextran, dextrin, hyaluronic acid, derivatives of hyaluronic acid, poly(2-hydroxyethyl methacrylate), hydroxy functional poly(styrene sulfonate), hydroxy

functional phosphoryl choline methacrylate polymers, polymers with both hydroxyl and phosphoryl choline functionalities, heparin or combinations thereof.

45-53. Cancelled.

54. (Previously presented) The article of claim 1, wherein the diol comprises ethylene glycol.

55. (Previously presented) The article of claim 1, wherein the diol comprises 1,2-propylene glycol.

56. (Previously presented) The article of claim 1, wherein the diol comprises 1,4-butanediol.

57. (Previously presented) The article of claim 1, wherein the diol comprises 1,5-pentanediol.

58. (Previously presented) The article of claim 1, wherein the diol comprises 1,7-heptanediol.

59. (Previously presented) The article of claim 1, wherein the diol comprises 1,8-octanediol.

60. (Previously presented) The article of claim 1, wherein the diol comprises 1,9-nonanediol.

61. (Previously presented) The article of claim 1, wherein the diol comprises 1,10-decanediol.

62. (Previously presented) The article of claim 1, wherein the diol comprises 1,11-undecanediol.

63. (Previously presented) The article of claim 1, wherein the diol comprises 1,12-dodecanediol.

64. (Previously presented) The article of claim 1, wherein the diol comprises 1,13-tridecanediol.

65. (Previously presented) The article of claim 1, wherein the diol comprises 1,14-tetradecanediol.

66. (Previously presented) The article of claim 1, wherein the diol comprises 1,15-pentadecanediol.

67. (Previously presented) The article of claim 1, wherein the diol comprises 1,16-hexadecanediol.

68. (Previously presented) The article of claim 1, wherein the diol comprises 1,3-propylene glycol.

69. (Previously presented) The article of claim 1, wherein the diol comprises butane-1,3-diol.

70. (Previously presented) The article of claim 1, wherein the diol comprises pentane-2,4-diol.

71. (Previously presented) The article of claim 1, wherein the diol comprises hexane-2,5-diol.

72. (Previously presented) The article of claim 1, wherein the diol comprises poly(tetramethylene glycol).

73. (Previously presented) The article of claim 1, wherein the diol comprises diethylene glycol.

74. (Previously presented) The article of claim 1, wherein the diol comprises triethylene glycol.

75. (Previously presented) The article of claim 1, wherein the diol comprises tetraethylene glycol.

76. (Previously presented) The article of claim 1, wherein the diol comprises poly(tetraethylene glycol).

77. (Previously presented) The article of claim 1, wherein the diol comprises poly(pentaethylene glycol).

78. (Previously presented) The article of claim 1, wherein the diol comprises poly(hexamethylene glycol).

79. (Previously presented) The article of claim 1, wherein the diol comprises poly(propylene glycol).

80. (Previously presented) The article of claim 1, wherein the diol comprises *trans*-cyclohexanedimethanol.

81. (Previously presented) The article of claim 1, wherein the diol comprises *cis*-cyclohexanedimethanol.

82. (Previously presented) The article of claim 1, wherein the diol comprises 1,2-cyclobutanediol,

83. (Previously presented) The article of claim 1, wherein the diol comprises 1,3-cyclobutanediol.

84. (Previously presented) The article of claim 1, wherein the diol comprises 1,2-cyclopentanediol.

85. (Previously presented) The article of claim 1, wherein the diol comprises 1,3-cyclopentanediol.

86. (Previously presented) The article of claim 1, wherein the diol comprises 1,2-cyclohexanediol.

87. (Previously presented) The article of claim 1, wherein the diol comprises 1,3-cyclohexanediol.

88. (Previously presented) The article of claim 1, wherein the diol comprises 1,4-cyclohexanediol.

89. (Previously presented) The article of claim 1, wherein the diol comprises 1,2-cycloheptanediol.

90. (Previously presented) The article of claim 1, wherein the diol comprises 1,3-cycloheptanediol.

91. (Previously presented) The article of claim 1, wherein the diol comprises 1,4-cycloheptanediol.

92. (Previously presented) The article of claim 1, wherein the diol comprises caprolactone diol.

93. (Previously presented) The article of claim 1, wherein the diol comprises *p*-benzenedimethanol.

94. (Previously presented) The article of claim 1, wherein the diol comprises *o*-benzenedimethanol.

95. (Previously presented) The article of claim 1, wherein the diol comprises *m*-benzenedimethanol.

96. (Previously presented) The article of claim 1, wherein the diol comprises a carbinol-terminated poly(dimethyl siloxane).

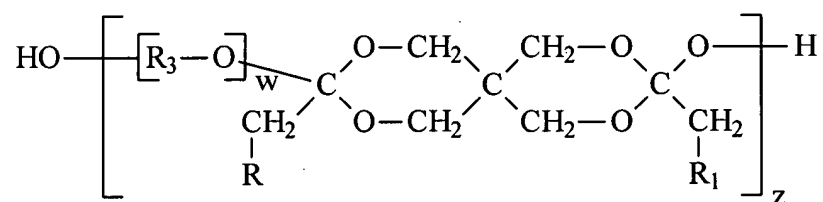
97. (Currently amended) A medical article, comprising an implantable substrate having a coating deposited on the substrate, the coating comprising a polymer, the polymer being a product of co-polycondensation of a diketene acetal and a diol,

wherein the diol comprises aliphatic, cycloaliphatic, aromatic, or organosilicon ~~diols~~ diol or combinations thereof, and

wherein the cycloaliphatic diol is selected from a group consisting of *cis*-cyclohexanedimethanol, 1,2-cyclobutanediol, 1,3-cyclobutanediol, 1,2-cyclopentanediol, 1,3-cyclopentanediol, 1,2-cyclohexanediol, 1,3-cyclohexanediol, 1,4-cyclohexanediol, 1,2-cycloheptanediol, 1,3-cycloheptanediol, 1,4-cycloheptanediol, caprolactone diol, and ~~mixtures~~ combinations thereof.

98. (Currently presented) A medical article, comprising an implantable substrate having a coating deposited on the substrate, the coating comprising a polymer, the polymer being a product of co-polycondensation of a diketene acetal and a diol, wherein the diketene acetal is selected from the group consisting of 3,9-dipentylidene-2,4,8,10-tetraoxaspiro-[5,5]-heptadecane, 3,9-dibutylidene-2,4,8,10-tetraoxaspiro-[5,5]-pentadecane, 3,9-dipropylidene-2,4,8,10-tetraoxaspiro-[5,5]-tridecane, and ~~mixtures~~ combinations thereof.

99. (Currently amended) A medical device comprising a coating which comprises a polymer including a unit having a formula:



wherein:

R and R₁ are, independently, unsubstituted or substituted straight-chained, branched, or cyclic alkyl radicals C₁-C₈, or unsubstituted or substituted aryl radicals;

R₃ is an aliphatic, cycloaliphatic, aromatic, or organosilicon ~~group~~ radical; and
“w” and “z” are integers, where the value of “w” is between 1 and 40, the value of “z” is between 9 and 700, and

wherein the cycloaliphatic group is derived from a diol selected from a group consisting of *cis*-cyclohexanedimethanol, 1,2-cyclobutanediol, 1,3-cyclobutanediol, 1,2-cyclopentanediol, 1,3-cyclopentanediol, 1,2-cyclohexanediol, 1,3-cyclohexanediol, 1,4-cyclohexanediol, 1,2-cycloheptanediol, 1,3-cycloheptanediol, 1,4-cycloheptanediol, caprolactone diol, and ~~mixtures~~ combinations thereof.

100. (New) The article of claim 44, wherein the hydroxylated functional compound comprises dextran.

101. (New) The article of claim 44, wherein the hydroxylated functional compound comprises dextrin.

102. (New) The article of claim 44, wherein the hydroxylated functional compound comprises hyaluronic acid.

103. (New) The article of claim 44, wherein the hydroxylated functional compound comprises derivatives of hyaluronic acid.

104. (New) The article of claim 44, wherein the hydroxylated functional compound comprises poly(2-hydroxyethyl methacrylate).

105. (New) The article of claim 44, wherein the hydroxylated functional compound comprises hydroxy functional poly(styrene sulfonate).

106. (New) The article of claim 44, wherein the hydroxylated functional compound comprises hydroxy functional phosphoryl choline methacrylate polymers.

107. (New) The article of claim 44, wherein the hydroxylated functional compound comprises polymers with both hydroxyl and phosphoryl choline functionality.

108. (New) The article of claim 44, wherein the hydroxylated functional compound comprises heparin.